

L-Number	Hits	Search-Text	DB	Time stamp
-	1	"20010008061"	USPAT;	2003/01/07 12:26
-	40	221/99.ccls.	US-PGPUB	2003/01/07 12:29
-	347	156/538.ccls.	USPAT;	2003/01/07 12:29
-	161	156/539.ccls.	US-PGPUB	2003/01/07 12:29
-	1415	156/538.ccls. or 156/539.ccls. or 156/556.ccls. or 156/559.ccls.	USPAT;	2003/01/07 12:29
-	113350	drawer or tray	US-PGPUB	2003/01/07 12:29
-	89	(156/538.ccls. or 156/539.ccls. or 156/556.ccls. or 156/559.ccls.) and (drawer or tray)	USPAT;	2003/01/07 12:40
-	256046	stack or stacking or stacked	US-PGPUB	2003/01/07 12:40
-	16582	drawer	USPAT;	2003/01/07 12:40
-	99860	tray	US-PGPUB	2003/01/07 12:40
-	196	(stack or stacking or stacked) same drawer same tray	USPAT;	2003/01/07 13:35
-	0	((stack or stacking or stacked) same drawer same tray) and (156/538.ccls. or 156/539.ccls. or 156/556.ccls. or 156/559.ccls.)	US-PGPUB	2003/01/07 12:42
-	157961	156/\$.ccls. or 221/\$.ccls. or 414/\$.ccls.	USPAT;	2003/01/07 12:43
-	22	((stack or stacking or stacked) same drawer same tray) and (156/\$.ccls. or 221/\$.ccls. or 414/\$.ccls.)	US-PGPUB	2003/01/07 13:35
-	0	20020029837.URPN.	USPAT;	2003/01/07 12:43
-	222255	green	USPAT;	2003/01/07 13:35
-	13	((stack or stacking or stacked) same drawer same tray) and green	US-PGPUB	2003/01/07 13:52
-	38	209/706.ccls.	USPAT;	2003/01/07 13:52
-	0	209/706.ccls. and ((stack or stacking or stacked) same drawer same tray)	US-PGPUB	2003/01/07 13:53
-	167234	lamine or laminated or laminating	USPAT;	2003/01/07 13:53
-	0	(209/706.ccls. and ((stack or stacking or stacked) same drawer same tray)) and (lamine or laminated or laminating)	US-PGPUB	2003/01/07 13:53
-	1	209/706.ccls. and (lamine or laminated or laminating)	USPAT;	2003/01/07 14:02
-	3509	green adj sheet	US-PGPUB	2003/01/07 14:02
-	3	(156/538.ccls. or 156/539.ccls. or 156/556.ccls. or 156/559.ccls.) and (green adj sheet)	USPAT;	2003/01/07 14:22
-	15	(drawer or tray) same (green adj sheet)	US-PGPUB	2003/01/07 14:47
-	628	211/59.2.ccls.	USPAT;	2003/01/07 14:47
-	100	211/126.15.ccls.	US-PGPUB	2003/01/07 14:47
-	37	(211/59.2.ccls. or 211/126.15.ccls.) and drawer	USPAT;	2003/01/07 14:50
-	42	((211/59.2.ccls. or 211/126.15.ccls.) and drawer) and54	US-PGPUB	2003/01/07 14:50
-	1	((211/59.2.ccls. or 211/126.15.ccls.) and drawer) and (lamine or laminated or laminating)	USPAT;	2003/01/07 14:53
-	538	211/49.1.ccls.	US-PGPUB	2003/01/07 14:53
-	867	211/50.ccls.	USPAT;	2003/01/07 14:53
-			US-PGPUB	

-	484	211/162.ccls.	USPAT; US-PGPUB	2003/01/07 14:53
-	2545	211/59.2.ccls. or 211/126.15.ccls. or 211/49.1.ccls. or 211/50.ccls. or 211/162.ccls.	USPAT; US-PGPUB	2003/01/07 14:54
-	0	(211/59.2.ccls. or 211/126.15.ccls. or 211/49.1.ccls. or 211/50.ccls. or 211/162.ccls.) and (green adj sheet)	USPAT; US-PGPUB	2003/01/07 14:54
-	2	(211/59.2.ccls. or 211/126.15.ccls. or 211/49.1.ccls. or 211/50.ccls. or 211/162.ccls.) and ((stack or stacking or stacked) same drawer same tray)	USPAT; US-PGPUB	2003/01/07 14:59
-	165	221/97.ccls.	USPAT; US-PGPUB	2003/01/07 14:59
-	33	221/98.ccls.	USPAT; US-PGPUB	2003/01/07 14:59
-	0	(221/97.ccls. or 221/98.ccls.) and ((stack or stacking or stacked) same drawer same tray)	USPAT; US-PGPUB	2003/01/07 15:00
-	0	(221/97.ccls. or 221/98.ccls.) and (green adj sheet)	USPAT; US-PGPUB	2003/01/07 15:00
-	182	156/559.ccls.	USPAT; US-PGPUB	2003/01/07 16:20
-	835	156/556.ccls.	USPAT; US-PGPUB	2003/01/07 16:25
-	0	6109323.URPN.	USPAT	2003/01/07 16:51
-	4	("4149925"   "4599122"   "5314711"   "5449409").PN.	USPAT	2003/01/07 16:51

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2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the method for carrying out the laminating of the ceramic green sheet to which printing by the electric conduction metal was given temporarily in front of the laminating press.

[0002]

[Description of the Prior Art] For example, although a ceramic sheet layered product is used at the time of manufacture of a multilayer capacitor In obtaining the ceramic green-sheet layered product for calcinating and obtaining a ceramic sheet layered product Since there is a possibility of deforming with force, temperature, etc. from the outside when it is necessary to carry out the laminating of the very thin (for example, mum order) ceramic green sheet and a ceramic green sheet is in a free state in that case Backing up a ceramic green sheet with the carrier sheet made of a metal flask or synthetic resin is performed from the former.

[0003]

[Problem(s) to be Solved by the Invention] By the way, although the laminating of the ceramic green sheet of two or more sheets was temporarily carried out in front of the laminating press at the time of obtaining a ceramic green-sheet layered product, in the former, at the time of the temporary laminating, the ceramic green sheet was removed from the metal flask or the carrier sheet, and was free, the relative-position precision of up-and-down ceramic green sheets fell by deformation of a ceramic green sheet, and it was difficult to obtain the outstanding ceramic sheet layered product of precision stably.

[0004] this invention is made in view of this situation, and aims at offering the temporary laminating method of the ceramic green sheet which enabled it to obtain the outstanding ceramic sheet layered product of precision stably by carrying out a temporary laminating, setting the ceramic green sheet which is easy to deform in the restricted state.

[0005]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention the ceramic green sheet of two or more sheets which gave printing by the electric conduction metal The hole is punched. the criteria of plurality [ object / sheet-like / which prepares a ceramic green sheet and changes on the carrier sheet made of synthetic resin in carrying out a laminating temporarily in front of the laminating press ] -- Operation of exfoliating the carrier sheet which is in an upper part position after pasting up ceramic green sheets mutually, making a hole fitting in from a ceramic green sheet is repeated successively. two or more criteria pins prepared in the installation board -- each criteria -- It is characterized by carrying out the laminating of the ceramic green sheet of two or more sheets temporarily on an installation board.

[0006]

[Embodiments of the Invention] Hereafter, it explains based on one example of this invention which showed the gestalt of operation of this invention to the accompanying drawing.

[0007] Drawing in which drawing 1 or drawing 20 shows one example of this invention, and drawing 1

shows the manufacturing process of a ceramic sheet layered product, The notch vertical section side elevation of a multilayer capacitor with which drawing 2 used the ceramic sheet layered product, The 3-3 line expanded sectional view of drawing 2 and drawing 4 drawing 3 The notch plan of a sheet-like object, Drawing 5 the side elevation of punching equipment, and drawing 7 for the 5-5 line cross section of drawing 4 , and drawing 6 The 7-7 line cross section of drawing 6 , The side elevation in which the side elevation in which drawing 8 shows the laminating state of a tray, and drawing 9 show the plan of a tray, and drawing 10 shows the composition of a punching-press machine, The plan of the sheet-like object after punching processing and drawing 12 drawing 11 The 12-12 line cross section of drawing 11 , The cross section with which drawing 13 meets the side elevation of temporary laminating equipment, and drawing 14 meets 14 to 14 line of drawing 13 , Drawing 15 16 view side elevation of drawing 15 , and drawing 17 for the plan of an installation board, and drawing 16 The side elevation of a laminating and cutting equipment, Drawing for the cross section with which drawing 18 meets 18 to 18 line of drawing 17 , and drawing 19 explaining the operation of 2 sets of walking beams, and drawing 20 are the plans immediately after cutting of a ceramic green-sheet layered product.

[0008] In drawing 1 , the ceramics which are fine particles-like are prepared at the raw-material storage place 21 first. Preparation equipment 22, a roll coater 23, the sheet cutting machine [ 26 and 26 ] 25 and 24 25, for example, printing and the dryers of a couple, for example, the punching equipments of a couple, the stock yard (six sets of for example, temporary laminating equipments) 27 28, 28 --, For example, the ceramic sheet layered product 32 as shows processing and processing with the laminating and the cutting equipments 29 and 29, the inspecting space 30, and the baking equipment 31 of a couple by drawing 2 by making it pass one by one is obtained.

[0009] In drawing 2 and drawing 3 , the ceramic sheet layered product 32 is used as a multilayer capacitor, and the laminating of the middle ceramic sheet 34 of two or more sheets, for example, 28 sheets, with which the printing section 33 which consists of an electric conduction metal that it should function as an electrode is formed in the whole surface side, respectively, and 34 -- is carried out between the covering ceramic sheet 35 of the couple which does not have the printing section, and 35, and it changes. It is that by which it \*\* and polar-zone 36 -- is formed in the both-sides side of the ceramic sheet layered product 32 of printing etc., respectively. the middle ceramic sheet 34 and 34 -- Laminating arrangement is carried out as those printing section 33 -- stands in a row by turns in polar-zone 36 -- of the both-sides side of the ceramic sheet layered product 32. A multilayer capacitor is constituted by covering the ceramic sheet layered product 32 in the covering section 38 by synthetic resin, after terminals 37 and 37 have been connected to two-electrodes section 36 -- by solder etc., respectively.

[0010] Again, in drawing 1 , in preparation equipment 22, the ceramics of the shape of fine particles brought to preparation equipment 22 from the raw-material storage place 21 are kneaded with a solvent or water, and are slurred. When it \*\* and slurry-like ceramics pass a roll coater 23 and the sheet cutting machine 24, the sheet-like object 40 as shown by drawing 4 and drawing 5 is acquired. That is, in a roll coater 23, it is applied by the thickness which is 5-25 micrometers, and when cut by the square configuration of a predetermined size with the sheet cutting machine 24, the sheet-like object 40 which forms the ceramic green sheet 42 and changes on the carrier sheet 41 is acquired for the ceramics slurred on the thin carrier sheet 41 which consists of synthetic resin, such as polyethylene. It \*\* and two or more these sheet-like objects 40 are formed in the square configuration with the size of a part of the product slack ceramic sheet layered product 32.

[0011] While printing and the dryers 25 and 25 of a couple are brought, respectively and the sheet-like object 40 acquired with the sheet cutting machine 24 is formed on the ceramic green sheet 42 of the sheet-like object 40 with those printings and dryers 25 and 25 of pattern printing according [ the printing section 33 (refer to drawing 3 ) which serves as an electrode in a multilayer capacitor ] to an electric conduction metal, dryness processing after printing processing is performed, respectively. However, printing processing is not performed about the sheet-like object 40 for obtaining the covering ceramic sheet 35 in the ceramic sheet layered product 32.

[0012] In drawing 6 and drawing 7 punching equipment 26 On the pedestal 44 placed in a fixed position



by the floor line 43, the empty tray eccrisis means 45, the \*\* tray supply means 46, the temporary positioning base 47, the justification means 48, the punching-press machine 49, the \*\* tray eccrisis means 50, and the empty tray supply means 51. Straight line-like conveyance line L1 Towards an other end (drawing 6 and left end of drawing 7 ) side, an interval is opened in order, and it is prepared and consists of an end (drawing 6 and right end of drawing 7 ) side.

[0013] The empty tray eccrisis means 45 and the \*\* tray supply means 46 are the conveyance line L1 about those inner end position. It arranges upwards and is the conveyance line L1. It is installed in the direction which intersects perpendicularly. It \*\*, and two or more 30 trays 52 and 52 -- are conveyed from the outer edge position of the \*\* tray supply means 46 to inner end position, for example, and the sheet-like object 40 is put [ which was accumulated as drawing 8 showed the \*\* tray supply means 46 ] on each tray 52 and 52 --, respectively. That is, it is constituted in the shape of [ by which the reticulated installation section 53 was formed in opening of a square configuration ] a frame, and the sheet-like object 40 is put on the reticulated installation section 53 so that a tray 52 may be specified by drawing 9 . And a projected part 54 and 54 -- protrude on the four buttock sections of a tray 52, and each tray 52 and 52 -- are supported by the projected part 54 of the downward tray 52, and 54 --, and are made and accumulated.

[0014] By the way, the sheet-like objects 40 and 40 are carried by making the ceramic green sheet 42 into a lower part position at the other trays 52 and 52 -- to the sheet-like object 40 being laid in the tray 52 which puts in the \*\* tray supply means 46, and serves as the lowest layer in the state considering the ceramic green sheet 42 as an upper part position, respectively. And sheet-like object 40 -- to which printing processing is performed is put on two or more tray 52 -- of pars intermedia to the sheet-like objects 40 and 40 with which printing processing is not performed being put on the trays 52 and 52 of the lowest layer and the best layer, respectively.

[0015] By transferring the sheet-like object 40 to the temporary positioning base 47 by the inner end position of the \*\* tray supply means 46, from the inner end position, tray 52 -- of the sky where two or more 30 trays 52 which became empty are accumulated, for example, and were accumulated is conveyed in an outer edge position, and is discharged by the empty tray eccrisis means 45 by the inner end position of the empty tray eccrisis means 45.

[0016] The temporary positioning base 47 has the upper surface of a square configuration slightly smaller than the sheet-like object 40, and the sheet-like object 40 is transferred to the upper surface of this temporary positioning base 47 one by one from the tray 52 in the inner end position of the \*\* tray supply means 46. and in the upper part of the temporary positioning base 47 While being arranged as possible, movement between the expansion positions which made a mutual distance expand to the reduction position row which the locating plates 55a and 55a of the couple which can contact edges on both sides parallel to both the sheet-like objects 40 put on the upper surface of this temporary positioning base 47 made mutual approach The locating plates 55b and 55b of the couple which can contact the aforementioned edges on both sides and the edges on both sides which intersect perpendicularly are arranged considering movement between the expansion positions which made a mutual distance expand to the reduction position row which it made mutual approach as possible. Therefore, each locating plates 55a, 55a, 55b, and 55b which were in the expansion position just before the sheet-like object 40 was transferred from the \*\* tray supply means 46 By making it move to a reduction position according to the sheet-like object 40 being put on the upper surface of the temporary positioning base 47 Each locating plates 55a, 55a, 55b, and 55b will contact all the side edges of the sheet-like object 40, and the position on the temporary positioning base 47 of the sheet-like object 40 will be set to simultaneously regularity.

[0017] This temporary positioning base 47 is related with the \*\* tray supply means 46, and is the conveyance line L1 of a pedestal 44 at an opposite side in the empty tray eccrisis means 45. It is arranged upwards. And the distance between the center of the temporary positioning base 47 and the inner edge center of the \*\* tray supply means 46 is set up equally to the distance between the inner edge centers of the empty tray eccrisis means 45 and the \*\* tray supply means 46.

[0018] The justification means 48 makes distance between the center position and center position of the

temporary positioning base 47 equal to the distance between the center of the temporary positioning base 47, and the inner edge center of the \*\* tray supply means 46. It is related with the temporary positioning base 47, and the \*\* tray supply means 46 is the conveyance line L1 of a pedestal 44 at an opposite side. It is what is arranged upwards. The rotation base 57 supported on the standing ways 56 fixed on a pedestal 44 considering rotation (rotation of the direction shown by theta in drawing 7 ) of the circumference of the vertical-axis line C as possible, It is the conveyance line L1 on this rotation base 57. It has the X-axis movable base 58 supported considering movement to X shaft orientations which meet mostly as possible, and the Y-axis movable base 59 supported considering movement to Y shaft orientations which intersect perpendicularly with the aforementioned X-axis on this X-axis movable base 58 as possible.

[0019] The sheet-like object 40 from the temporary positioning base 47 is laid on the Y-axis movable base 59. And two or more image sensors 60, for example, CCD series, and 60 -- are attached in the Y-axis movable base 59, and these CCD series 60 and 60 -- picturize the inferior surface of tongue of the sheet-like object 40 brought about above the Y-axis movable base 59 from a lower part. Under the present circumstances, since it is the posture which made the ceramic green sheet 42 the lower part position when transferred to the temporary positioning base 47 from the temporary positioning base 47 if it is in the sheet-like object 40 with which printing was given to the ceramic green sheet 42, the printing pattern of the ceramic green sheet 42 will be picturized by aforementioned CCD series 60 and 60 --. It \*\*. the rotation base 57, the X-axis movable base 58, and the Y-axis movable base 59 CCD series 60 and the printing pattern of the ceramic green sheet 42 picturized by 60 --, It drives so that a relative position with the Y-axis movable base 59 may turn into a fixed position, after the aforementioned relative position has become fixed, the sheet-like object 40 is laid on the Y-axis movable base 59, and the rotation base 57, the X-axis movable base 58, and the Y-axis movable base 59 are returned to an initial valve position after that. That is, the Y-axis movable base 59 which set the relative position constant and carried the sheet-like object 40 is the conveyance line L1. It is returned to the initial state which set constant the posture in which it received.

[0020] By the way, in the \*\* tray supply means 46, the sheet-like objects 40 and 40 with which printing processing is not performed are put on the trays 52 and 52 of the lowest layer and the best layer, respectively, and positioning according [ those sheet-like objects 40 and 40 ] to CCD series 60 and 60 -- in the time of \*\*\*\*\* is impossible also for the justification means 48. However, the ceramic green sheet 42 to which printing processing is not performed It is what serves as the covering ceramic sheets 35 and 35 (refer to drawing 2 and drawing 3 ) of ends when the ceramic sheet layered product 32 is constituted. What is necessary is to just be carried on the Y-axis movable base 59 that what is necessary is just to have the middle ceramic sheet 34 and the size corresponding to 34 --, without performing CCD series 60 and positioning by 60 --, since strict relative-position adjustment with the middle ceramic sheet 34 and 34 -- is unnecessary.

[0021] moreover, in a pedestal 44 It is the conveyance line L1 in the upper part of the empty tray eccrisis means 45, the \*\* tray supply means 46, the temporary positioning base 47, the justification means 48, the punching-press machine 49, the \*\* tray eccrisis means 50, and the empty tray supply means 51. Meet and the prolonged guidance rail 62 Guidance stand 61 -- of the couple which it has, respectively is prepared. The empty tray eccrisis means 45 And between the positions corresponding to the \*\* tray supply means 46, respectively The truck 63 in which both-way movement is possible, the \*\* tray supply means 46 and the truck 64 in which both-way movement of between the positions corresponding to the temporary positioning base 47 is possible respectively, and the truck 65 in which both-way movement of between the positions corresponding to the temporary positioning base 47 and the justification means 48 is possible respectively in a row Along with both guidance rail 62 --, it is arranged possible [ movement ], and those trucks 63, 64, and 65 are connected mutually that it should move synchronously.

[0022] The maintenance means 66 which can switch maintenance and maintenance release of a tray 52 is arranged possible by the truck 63, and the tray 52 which became with empty by the transfer of the sheet-like object 40 in the \*\* tray supply means 46 is moved one by one by the inner end position of an

empty tray eccentric means 45 by the rise-and-fall operation of a maintenance means 66 to both-way movement of the truck 63 between the positions corresponding to the empty tray eccentric means 45 and the \*\* tray supply means 46, and a row, respectively. Moreover, the maintenance means 67 which can switch maintenance and maintenance release of the sheet-like object 40 to a truck 64 is arranged possible [ rise and fall ]. In both-way movement of the truck 64 between the positions corresponding to the \*\* tray supply means 46 and the temporary positioning base 47, and a row, respectively by the rise-and-fall operation of the maintenance means 67. The sheet-like object 40 carried on the tray 52 of the method of the best in the inner end position of the \*\* tray supply means 46 is transferred to the temporary positioning base 47 one by one. Furthermore, the maintenance means 68 which can switch maintenance and maintenance release of the sheet-like object 40 is arranged by the truck 65 possible [ rise and fall ], and the sheet-like object 40 which is in both-way movement of the truck 65 between the positions corresponding to the temporary positioning base 47 and the justification means 48 and a row on the temporary positioning base 47 by the rise-and-fall operation of the maintenance means 68, respectively is brought to the justification means 48 one by one. And it is started after the position of the Y-axis movable base [ in / the justification means 48 / in downward operation of the maintenance means 68 in the state where a truck 65 is in the position corresponding to the justification means 48 ] 59 becomes settled.

[0023] Drawing 10 is referred to collectively, and the punching-press machine 49 has metal mold 72, when having two incomes with Shimokane type 71 which carries the sheet-like object 40, and Shimokane type 71 and carrying out punching-press operation. \*(ing) -- Shimokane type 71 -- this -- lower -- two or more fitting in the position corresponding to the periphery section of the sheet-like object 40 on metal mold 71 -- a hole 73 and 73 -- are prolonged up and down, and prepare -- having -- \*\*\*\* -- the upper -- metal mold 72 -- the sheet-like object 40 -- penetrating -- each fitting -- a hole 73, the projected part 74 which can fit into 73 --, and 74 -- are prepared moreover -- Shimokane type 71 -- the upper -- two or more guides into which two or more guide pins 76 and 76 prepared in metal mold 72 are made to fit -- holes 75 and 75 are formed

[0024] By the way, Shimokane type 71 is the conveyance line L1. The guide rails 77 and 77 of the couple which is prolonged in the direction which intersects perpendicularly and is prepared on the pedestal 44 are met. Between the inner end position of those guide rails 77 and 77 and an outer edge position is movable. Four supports 78 and 78 -- are set up by the pedestal 44 in the portion corresponding to the outer edge position of both the guide rails 77 and 77, and the cylinder 80 which has a vertical-axis line is arranged in those supports 78 and the inferior-surface-of-tongue center section of the support plate 79 of 78 -- fixed to the upper-limit section. Each strut 78 and the rise-and-fall board 81 guided by 78 -- in rise-and-fall operation are connected with the cylinder 80, and metal mold 72 is fixed to this rise-and-fall board 81 a top.

[0025] According to such a punching-press machine 49, the sheet-like object 40 is transferred from the justification means 48 on Shimokane type 71 in the state where Shimokane type 71 is arranged at the inner end position of both the guide rails 77 and 77. Under the present circumstances, a transfer of the justification means 48 and the sheet-like object 40 between Shimokane type 71. It is what is performed by the transfer equipment (not shown) which was constituted like the aforementioned trucks 63-65 and the maintenance meanses 66-68, and was formed in the guidance stand 61. At the justification means 48, it is the conveyance line L1 of the sheet-like object 40. Since the posture in which it receives is fixed, when the sheet-like object 40 is carried on Shimokane type 71, the relative position of this sheet-like object 40 and Shimokane type 71 becomes always fixed.

[0026] When it is conveyed by both the guide rails 77 and 77 to the lower part position of metal mold 72 a top, a cylinder 80 is made to operate after Shimokane type 71 has stopped and metal mold 72 descends a top by them, Shimokane type 71 on which the sheet-like object 40 was put a projected part 74, 74 --, and fitting -- drawing 11 and drawing 12 show by the hole 73 and 73 -- as -- the criteria of plurality [ object / sheet-like / 40 ] -- a hole 82 and 82 -- will be punched

[0027] The \*\* tray eccentric means 50 and the empty tray supply means 51 are the conveyance line L1 about those inner end position. It arranges upwards and is the conveyance line L1. It is installed in the



direction which intersects perpendicularly. **\*(ing)**, the **\*\* tray eccrisis means 50** is a thing which carried the sheet-like object 40 by which piercing was carried out with the punching-press machine 48 and which conveys two or more 30 trays 52 and 52 -- in an outer edge position from the inner end position of the **\*\* tray eccrisis means 50**, for example. Moreover, the tray 52 of the empty which the empty tray supply means 51 conveys tray 52 -- of the accumulated empty from the outer edge position to inner end position, accumulates it by the inner end position of the empty tray supply means 51, and is in a state, and 52 -- are brought to the inner end position of the **\*\* tray eccrisis means 50** one by one.

[0028] The punching-press machine 48 and the truck 84 in which both-way movement of between the positions corresponding to the **\*\* tray eccrisis means 50** is possible respectively, and the truck 85 in which both-way movement of between the positions corresponding to the **\*\* tray eccrisis means 50** and the empty tray supply means 51 is possible respectively are arranged possible [ movement ] along with both guidance rail 62 --, and those trucks 84 and 85 are connected mutually that it should move synchronously. Moreover, the maintenance means 86 which can switch maintenance and maintenance release of the sheet-like object 40 is arranged possible [ rise and fall ] by the truck 84, and the sheet-like object 40 piercing was carried out [ the object ] to both-way movement of the truck 84 between the positions corresponding to the punching-press machine 48 and the **\*\* tray eccrisis means 50** and the row by the rise-and-fall operation of the maintenance means 86 with the punching-press machine 48, respectively is moved to the inner end position of the **\*\* tray eccrisis means 51** one by one. Moreover, the maintenance means 87 which can switch maintenance and maintenance release of a tray 52 to a truck 85 is arranged possible [ rise and fall ]. In both-way movement of the truck 85 between the positions corresponding to the **\*\* tray eccrisis means 50** and the empty tray supply means 51, and a row, respectively by the rise-and-fall operation of the maintenance means 87 Trays 52 and 52 which put in the inner end position of the empty tray supply means 51, and are in a state -- The tray 52 of the method of the best is transferred to the inner end position of the **\*\* tray eccrisis means 50** one by one inside.

[0029] thus, two or more criteria, although a hole 82, the tray 52 which carried the sheet-like object 40 which has 82 --, respectively, and 52 -- are brought to the stock yard 27 which it is discharged from the **\*\* tray eccrisis means 50**, and is shown by drawing 1 In this stock yard 27, the tray 52 in a pile state, and the sheet-like object 40 of 52 -- put on the tray 52 of the method of the best inside Since it was in the lowest layer in the state of the pile in the **\*\* tray supply means 46** and was laid in the tray 52 by making the ceramic green sheet 42 into an upper part position, it is the posture which made the ceramic green sheet 42 the upper part position.

[0030] In drawing 13 and drawing 14 , on the pedestal 90 placed in a fixed position by the floor line 43, the empty tray eccrisis means 91, the **\*\* tray supply means 92**, the temporary positioning base 93, the both-way conveyance means 94, the adhesives application means 95, the temporary laminating press machine 96, and the carrier sheet ablation machine 97 are formed, and temporary laminating equipment 28 changes.

[0031] On a pedestal 90, it is the straight line-like conveyance line L2. It is set up and the empty tray eccrisis means 91 and the **\*\* tray supply means 92** are the conveyance line L2 about those inner end position. It arranges upwards and is the conveyance line L2. It is installed in the direction which intersects perpendicularly. It **\*\***, and two or more 30 trays 52 and 52 -- are conveyed from the outer edge position of the **\*\* tray supply means 92** to inner end position, for example, and the sheet-like object 40 is put [ on which the **\*\* tray supply means 92** was accumulated ] on each tray 52 and 52 --, respectively. Moreover, by transferring the sheet-like object 40 to the temporary positioning base 93 by the inner end position of the **\*\* tray supply means 92**, from the inner end position, tray 52 -- of the sky where two or more 30 trays 52 which became empty are accumulated, for example, and were accumulated is conveyed in an outer edge position, and is discharged by the empty tray eccrisis means 91 by the inner end position of the empty tray eccrisis means 91.

[0032] The temporary positioning base 93 has the upper surface of a square configuration slightly smaller than the sheet-like object 40, and the sheet-like object 40 is transferred to the upper surface of this temporary positioning base 93 one by one from the tray 52 in the inner end position of the **\*\* tray supply means 92**. and in the upper part of the temporary positioning base 93 While being arranged as



possible, movement between the expansion positions which made a mutual distance expand to the reduction position row which the locating plates 98a and 98a of the couple which can contact edges on both sides parallel to both the sheet-like objects 40 put on the upper surface of this temporary positioning base 93 made mutual approach. The locating plates 98b and 98b of the couple which can contact the aforementioned edges on both sides and the edges on both sides which intersect perpendicularly are arranged considering movement between the expansion positions which made a mutual distance expand to the reduction position row which it made mutual approach as possible. Therefore, each locating plates 98a, 98a, 98b, and 98b which were in the expansion position just before the sheet-like object 40 was transferred from the \*\* tray supply means 92. By making it move to a reduction position according to the sheet-like object 40 being put on the upper surface of the temporary positioning base 93. Each locating plates 98a, 98a, 98b, and 98b will contact all the side edges of the sheet-like object 40, and the position on the temporary positioning base 93 of the sheet-like object 40 will be set to simultaneously regularity.

[0033] This temporary positioning base 93 is related with the \*\* tray supply means 92, and is the conveyance line L2 of a pedestal 90 at an opposite side in the empty tray eccentric means 91. It is arranged upwards. And the distance between the center of the temporary positioning base 93 and the inner edge center of the \*\* tray supply means 92 is set up equally to the distance between the inner edge centers of the empty tray eccentric means 91 and the \*\* tray supply means 92.

[0034] For the both-way conveyance means 94, the parallel rail 100,100 of the couple arranged on a pedestal 90 and both the rails 100,100 that have arranged the end in the position which was equipped with the movable carriage 101 in which both-way movement is possible along with both the rails 100,100, and adjoined the temporary positioning base 93 are the conveyance line L2. It is met and installed.

[0035] On a movable carriage 101, when this movable carriage 101 is in the end of both the rails 100,100, the installation board 102 shown by drawing 15 and drawing 16 is positioned and laid by the handicraft by the worker. two or more criteria which \*\* and are drilled by the sheet-like object 40 -- two or more criteria pin 103,103 -- which fits into a hole 82 and 82 -- protrudes on the upper surface of the installation board 102, and cylinder-like leg 104,104 -- into which criteria pin 103,103 -- may be made to fit from a lower part protrudes on the inferior surface of tongue of the installation board 102 corresponding to each criteria pin 103,103 -- Moreover, when the installation board 102 is carried on a movable carriage 101, two or more notch 105,105 -- for making the gage pin (not shown) prepared in this movable carriage 101 fit in, and defining the position of the installation board 102 on this movable carriage 101 fixed is prepared in the side edge of the installation board 102.

[0036] In a pedestal 90, it is the conveyance line L2 in the upper part of the end section of the empty tray eccentric means 91, the \*\* tray supply means 92, the temporary positioning base 93, and the both-way conveyance means 94. Guidance stand 107 -- of the couple which meets and has the prolonged guidance rail 106, respectively is prepared. The empty tray eccentric means 91. And between the positions corresponding to the \*\* tray supply means 92, respectively. The truck 108 in which both-way movement is possible, the \*\* tray supply means 92 and the truck 109 in which both-way movement of between the positions corresponding to the temporary positioning base 93 is possible respectively, and the truck 110 in which both-way movement of between the positions corresponding to the end section of the temporary positioning base 93 and the both-way conveyance means 94 is possible respectively in a row. Along with both guidance rail 106 --, it is arranged possible [ movement ], and those trucks 108,109 are connected mutually that it should move synchronously.

[0037] The maintenance means 111 which can switch maintenance and maintenance release of a tray 52 is arranged possible by the truck 108, and the tray 52 which became with empty by the transfer of the sheet-like object 40 in the \*\* tray supply means 92 is moved one by one by the inner end position of an empty tray eccentric means 91 by the rise-and-fall operation of a maintenance means 111 to both-way movement of the truck 108 between the positions corresponding to the empty tray eccentric means 91 and the \*\* tray supply means 92, and a row, respectively. Moreover, the maintenance means 112 which can switch maintenance and maintenance release of the sheet-like object 40 to a truck 109 is arranged

possible [ rise and fall ]. In both-way movement of the truck 109 between the positions corresponding to the \*\* tray supply means 92 and the temporary positioning base 93, and a row, respectively by the rise-and-fall operation of the maintenance means 112 The sheet-like object 40 carried on the tray 52 of the method of the best in the inner end position of the \*\* tray supply means 92 is transferred to the temporary positioning base 93 one by one. The maintenance means 113 which can furthermore switch maintenance and maintenance release of the sheet-like object 40 to a truck 110 is arranged possible [ rise and fall ]. In both-way movement of the truck 110 between the positions corresponding to the end section of the temporary positioning base 93 and the both-way conveyance means 94, and a row, respectively by the rise-and-fall operation of the maintenance means 113 The sheet-like object 40 on the temporary positioning base 93 is brought to the installation board 102 on the movable carriage 101 stopped in the end section of the both-way conveyance means 94 one by one.

[0038] The temporary laminating press machine 96 is what is arranged on a pedestal 90 corresponding to the pars intermedia of the both-way conveyance means 94. The support plate 115 of four support 114,114 -- set up by the pedestal 90 depending on a way outside both the rails 100,100 in the both-way conveyance means 94 fixed to the upper-limit section, The cylinder 116 which has a vertical-axis line and is supported by the upper surface of a support plate 115 fixed, It is a thing equipped with a member 117. the press connected with the aforementioned cylinder 116 while making it possible to show around by each strut 114,114 -- and to go up and down and being arranged under the support plate 115 -- The press force can be made to act on the sheet-like object 40 which has appeared on the installation board 102 on a movable carriage 101 from the upper part by carrying out the extension operation of the cylinder 116 in the state where the movable carriage 101 in the both-way conveyance means 94 has stopped in the position corresponding to the temporary laminating press machine 96.

[0039] Between the end section of the both-way conveyance means 94, and the temporary laminating press machine 96, in guidance stand 107 --, it is arranged in an edge, and towards a lower part, a from cartridge, it is energized and, as for the adhesives application means 95, the roller 118 with adhesives which can go up and down changes. If it is in this adhesives application means 95, when the movable carriage 101 of the both-way conveyance means 94 moves towards the temporary laminating press machine 96 side from the end section of both the rails 100,100, the roller 118 with adhesives is made to go up, and it is made to descend when a movable carriage 101 moves towards the end section side of both the rails 100,100 from the temporary laminating press machine 96.

[0040] The carrier sheet exfoliation machine 97 is what is arranged on a pedestal 90 corresponding to the other end of both the rails 100,100 in the both-way conveyance means 94. Conveyance line L2 The stand 119 which receives, for example, makes the angle of 45 degrees, and is formed on a pedestal 90, the exfoliation which enables the movable carriage 121 in which both-way movement is possible, and adjustment of a vertical position along with the guide rail 120,120 of the couple prepared in this stand 110, and is supported by the movable carriage 121 -- it has a member 122

[0041] A movable carriage 121 is the conveyance line L2, when it is in the original position shown by drawing 13 and drawing 14 and the installation board 102 has been conveyed to the position corresponding to the carrier sheet exfoliation machine 97 with the both-way conveyance means 94 until the installation board 102 is conveyed by the both-way conveyance means 94. It receives and 45 movements in a direction are started. under the present circumstances, the level corresponding to the carrier sheet 41 in the upper part of the sheet-like object 40 which has appeared on the installation board 102 -- exfoliation -- the vertical position of a member 122 adjusts -- having -- \*\*\*\* -- a movable carriage 121 and exfoliation -- the carrier sheet 41 will exfoliate from the ceramic green sheet 42 of the lower part by moving in the direction in which a member 122 meets the diagonal line of the sheet-like object 40

[0042] According to such temporary laminating equipment 28, the installation board 102 into which the sheet-like object 40 which serves as the lowest layer first was loaded considering the carrier sheet 41 as a lower part position is conveyed towards the other end from the end section of both the rails 100,100 by the both-way conveyance means 94. Since the sheet-like object 40 on the installation board 102 is in the posture which made the ceramic green sheet 42 the upper part position at this time, just before the

carrier sheet exfoliation operation by the carrier sheet exfoliation machine 97 is not performed in the press operation row by the temporary laminating press machine 96 but the installation board 102 returns to the end section of both the rails 100,100, adhesives are applied to the ceramic green sheet 42 with the roller 118 with adhesives of the adhesives application means 95. Subsequently, after the following sheet-like object's 40 making the ceramic green sheet 42 a lower part position in the end section of both the rails 100,100 and putting on the sheet-like object 40 of the lowest layer, the installation board 102 is conveyed to the position corresponding to the temporary laminating press machine 96, and is made to stop, and when the press force by the temporary laminating press machine 96 acts in the state, ceramic green-sheet 42 up-and-down comrades paste up. Furthermore, the installation board 102 is conveyed from the temporary laminating press machine 96 to the position corresponding to the carrier sheet exfoliation machine 97, the carrier sheet 41 of the sheet-like object 40 in the best layer exfoliates with the carrier sheet exfoliation machine 97, and adhesives are applied to the ceramic green sheet 42 of the best side after that in process in which the installation board 102 returns to the end section of both the rails 100,100. by repeating such operation one by one, the laminating of two or more, for example, ceramic green sheet of 30 sheets, 42 -- mutually pasted up on the carrier sheet 41 of one sheet which appeared on the installation board 102 is pasted up and carried out mutually -- \*\*\*\*\* -- moreover -- the relative position of each ceramic green-sheet 42 -- criteria pin 103,103 -- of the installation board 102 -- criteria -- it has become settled uniformly by fitting into a hole 82 and 82 -- It \*\*, and where [ of ceramic green-sheet 42 -- of setting number of sheets ] a laminating is completed, the installation board 102 is discharged from the carrier sheet exfoliation machine 97.

[0043] In drawing 17 and drawing 18 , a laminating and cutting equipment 29 are equipped with the supply conveyer 126, the laminating press machine 127, and a cutting machine 128, and \*\*\*\* 131 of a cutting machine 128 is arranged by the \*\*\*\* 130 row of \*\*\*\* 129 of the supply conveyer 126, and the laminating press machine 127 fixed on the pedestal 125 placed in a fixed position at a floor-line 43 top.

[0044] \*\*\*\* 129 of the supply conveyer 126 is the conveyance line L3 of the shape of a straight line set up on a pedestal 125. It is installed in the direction which intersects perpendicularly and the toe of this \*\*\*\* 129 is the conveyance line L3. As it is located upwards, it is arranged on a pedestal 125. It \*\*, and the supply conveyer 126 can turn to a toe two or more ceramic green sheets 42 and 42 -- which are carried in the state of the temporary laminating on the installation board 102 from the heel, and can convey them horizontally.

[0045] Corresponding to the toe of the supply conveyer 126, the maintenance rise-and-fall means 132 is arranged on the aforementioned machine base 129. this maintenance rise-and-fall means 132 The guide rail 134,134 of the guide frame 133 which was prolonged up and down and prepared in \*\*\*\* 129, and the couple prepared in this guide frame 133 is met. The ramp 135 which it can go up and down, It is a thing equipped with the clamp fixture 136 which enables the clamp and clamp release of the installation board 102 in the toe of the supply conveyer 126, and is formed in a ramp 135. Two or more ceramic green sheets 42 and the installation board 102 on which 42 -- is put in the state of the temporary laminating can be made to go up from the supply conveyer 126.

[0046] the press which the laminating press machine 127 can go up and down in the upper part of the cradle 137 of the fixation which can carry the installation board 102, and this cradle 137 -- a member 138 and this press -- the cylinder 139 which carries out the rise-and-fall operation of the member 138 -- having -- \*\*\*\* 130 of the laminating press machine 127 -- conveyance line L3 It is placed in a fixed position on a pedestal 125 in the position which meets and adjoins the toe of the aforementioned supply conveyer 126.

[0047] A cradle 137 is the aforementioned conveyance line L3. Upwards, as it has a center, it is placed in a fixed position on \*\*\*\* 130, and the cylinder 139 which has a vertical-axis line in the support plate 141 of four support 140,140 -- set up by \*\*\*\* 130 depending on the method of an outside of a cradle 137 prepared in the upper-limit section is arranged fixed. moreover, press -- a member 138 makes it possible to show around and carry out a rise-and-fall operation by each strut 140,140 --, and arranges it under the support plate 141 -- having -- a cylinder 139 -- this press -- it connects with a member 138

[0048] carrying out the extension operation of the cylinder 139, where two or more ceramic green sheets



42 and the installation board 102 which has carried 42 -- in the state of the temporary laminating are carried on a cradle 137 in this laminating press machine 127 -- press -- two or more ceramic green sheets 42 on the installation board 102 and the laminating of 42 -- can be completed by applying the press force by the member 138 to each ceramic green sheet 42 and 42 -- from the upper part

[0049] By the way, when [ of the ceramic green sheet 42 and 42 -- ] performing a laminating press, it is required to heat at about 80 - 90 degrees C, and the heater (not shown) is built in the cradle 137.

[0050] Conveyance of the installation board 102 from the laminating press machine 127 to a cutting machine 128 side is performed in conveyance of the installation board 102 from the rise-and-fall maintenance means 132 to the laminating press machine 127, and a row by the walking beam 142,142; 143,143 of couple every 2 groups, and these walking beams 142,142; 143,143 are arranged at the both sides of a cradle 137.

[0051] A walking beam 142,142; 143,143 has the length which consists of distance between the centers of the supply conveyer 126 and the laminating press machine 127 size by \*(ing), and it is the conveyance line L3. It meets, and is installed in parallel, operation as shown by drawing 19 by the driving means which omit explanation is performed, and the installation board 102 is conveyed.

[0052] In the state of receiving two or more ceramic green sheets 42 and the installation board 102 on which 42 -- is put in the state of the temporary laminating from the rise-and-fall maintenance means 132 in drawing 19 (a) Both walking-beams 142 -- and 143-- While making the end correspond to the supply conveyer 126, it is in the position which makes the other end equivalent to the cradle 137 of the laminating press machine 127, and the installation boards 102 are both the walking beams 142, --, 143 from the rise-and-fall maintenance means 132 in this state. -- It is put on the end section.

[0053] Subsequently, after one walking-beam 142 -- is made to go up as drawing 19 (b) shows, horizontal displacement is carried out to the position which makes the end section correspond to the cradle 137 of the laminating press machine 127. Thereby, as the installation board 102 of one walking-beam 142 -- put on the end section is conveyed to the upper part position of a cradle 137 and drawing 19 (c) shows, by making one walking-beam 142 -- descend to a lower part rather than the upper surface of a cradle 137, the installation board 102 will be carried on a cradle 137, and walking-beam 143 -- of another side has stood it still in the meantime.

[0054] As drawing 19 (d) shows after the completion of laminating processing by the laminating press machine 127 of two or more ceramic green sheets 42 on the installation board 102, and 42 --, walking-beam 143 -- of another side is made to go up to the upper part rather than the upper surface of a cradle 137, and horizontal displacement is carried out to the position where this walking-beam 143 -- makes the end section correspond to a cradle 137 further. The installation board 102 which had appeared on the cradle 137 by this is a walking beam 143. -- It is transferred on the other end and made to move to a cutting machine 128 side from the laminating press machine 127. In this state, the installation board 102 in the toe of the supply conveyer 126 is made to go up from the supply conveyer 126 by the rise-and-fall maintenance means 132, and the installation board 102 on the other end of walking-beam 143 -- is transferred to a cutting machine 128 by the below-mentioned transfer equipment 148.

[0055] After transfer completing by the side of the cutting machine 128 of the installation board 102, as drawing 19 (e) shows, it is made to descend to the position with which walking-beam 143 -- of another side is horizontal to one walking-beam 142 --, and laps, and 143 -- carries out horizontal displacement after that to both walking-beams 142 -- and the position shown by drawing 19 (a).

[0056] By [ of such walking-beam 142 -- and 143-- ] repeating an operation, while the installation board 102 is conveyed by the laminating press machine 127 from the rise-and-fall maintenance means 132, the installation board 102 will be conveyed from the laminating press machine 127 at a cutting machine 128 side.

[0057] A cutting machine 128 is the conveyance line L3. The rotation table 146 arranged on the movable carriage 145 which can move in the direction which intersects perpendicularly considering rotating 90 degrees to the circumference of a vertical-axis line as possible, It has two or more ceramic green sheets 42 on the installation board 102 carried on this rotation table 146, and the cutter 147 which cuts 42 --. \*\*\*\* 131 of this cutting machine 128 It is placed in a fixed position on \*\*\*\* 125 by the



supply conveyer 126 and the opposite side about the laminating press machine 127.

[0058] On \*\*\*\* 131, it is the conveyance line L3. The rail 149,149 of the couple prolonged in the direction which intersects perpendicularly is fixed, and a movable carriage 145 is movable along with those rails 149,149. Moreover, on both sides in the longitudinal direction pars intermedia of both the rails 149,149, on \*\*\*\* 131, the housing 150,150 is set up and a cutter 147 is supported by those housings 150,150 possible [ rise and fall ]. Moreover, the cylinder 151,151 connected with a cutter 147 has a vertical-axis line in both the housings 150,150, and is arranged in them fixed, and the rise-and-fall drive of the cutter 147 is carried out by carrying out the synchronous operation of both the cylinders 151,151. And a heater 152,152 is arranged in the both sides of a cutter 47 in order to cut the ceramic green sheet 42 and 42 -- on the processing temperature and the abbreviation same conditions in the laminating press machine 127.

[0059] By the way, as drawing 19 (d) showed, the transfer equipment 148 for making the installation board 102 brought to the cutting machine 128 side from the laminating press machine 127 by walking-beam 143 -- lay on the rotation table 146 of a cutting machine 128 is arranged on \*\*\*\* 131 of a cutting machine 128.

[0060] This transfer equipment 148 is the conveyance line L3. The stand 153 arranged fixed on \*\*\*\* 131 as straddles a cutting machine 128 in the upper part while being prolonged in parallel, Conveyance line L3 While enabling the change of the truck 155 in which both-way movement is possible, and maintenance and maintenance release of the installation board 102 along with the guidance rail 154,154 of the couple which made it parallel and was prepared in the stand 153, it has the maintenance means 156 arranged by the truck 155 as rise and fall being possible.

[0061] According to such a transfer equipment 148, layer movement and the rise-and-fall operation of the maintenance means 156 enable it to transfer the installation board 102 brought about from the laminating press machine 127 at the cutting machine 128 side on the rotation table 146 on the movable carriage 145 which is standing by in the lower part of a transfer equipment 148 by walking-beam 143 -- at the guidance rail 154,154 of a truck 155.

[0062] Moreover, although two or more ceramic green sheets 42 which a laminating press is carried out with the laminating press machine 127, and are in a laminating state in the above-mentioned cutting machine 128, and 42 -- will be cut in the state where it is laid on the installation board 102 By making it operate until two or more ceramic green sheets 42 and 42 -- are in the state where the laminating was carried out on the carrier sheet 41 of one sheet, in that case and it makes a cutter 147 eat into the carrier sheet 41 All the ceramic green sheets 42 in a laminating state and 42 -- will be cut certainly. Moreover, by making the rotation table 146 rotate 90 degrees, as each ceramic green sheet 42 and 42 -- will be cut in the direction which intersects perpendicularly mutually and drawing 20 shows them, two or more ceramic green-sheet layered product 160,160 -- will be obtained from each ceramic green sheet 42 and 42 --. \*(ing), each ceramic green-sheet layered product 160,160 -- has a size corresponding to the ceramic sheet layered product 32 obtained after baking, respectively.

[0063] The ceramic green-sheet layered product 160 again obtained with each laminating and cutting equipments 29 and 29 paying attention to drawing 1 will be calcinated with baking equipment 31, after inspecting at the inspecting space 30, and the ceramic sheet layered product 32 as shown by drawing 2 will be obtained by that cause.

[0064] Next, if an operation of this example is explained, in printing and a dryer 25, printing processing to the front face of the ceramic green sheet 42 and dryness processing will be performed to the sheet-like object 40 which forms the ceramic green sheet 42 and changes on the carrier sheet 41, and punching equipment 26 will be brought.

[0065] the criteria [ equipment / punching / 26 / this ] of plurality / object / sheet-like / 40 ] -- picturizing the printing pattern of the ceramic green sheet 42 in the sheet-like object 40 by CCD series 60 and 60 --, although a hole 82 and 82 -- are punched -- criteria -- it is possible to always determine a relative position with a printing pattern as a hole 82 and 82 -- uniformly

[0066] thus, the sheet-like object 40 after printing, dryness processing, etc. were performed -- two or more criteria for a laminating -- punching a hole 82 and 82 -- criteria -- a hole -- compared with what

printing, dryness processing, etc. give after punching, bad influences, such as distortion by printing, dryness processing, etc., reach -- as much as possible -- avoiding -- a printing pattern and each criteria -- a hole 82 and relative-position precision with 82 -- can be raised And by the image pick-up by CCD series 60 and 60 --, detection of the defective produced at printing and the dryness process is possible, and a defective can be separated at any time.

[0067] criteria -- two or more sheet-like objects 40 with which a hole 82 and 82 -- were punched, and 40 -- are brought to temporary laminating equipment 28, respectively criteria pin 103,103 -- which \*\* and is prepared in the installation board 102 with this temporary laminating equipment 28 -- each criteria -- making it fit into a hole 82 and 82 --, operation exfoliate the carrier sheet 41 which is in an upper part position after pasting the operation row which pastes up ceramic green-sheet 42 comrades mutually from the ceramic green sheet 42 is repeated successively, and the temporary laminating of the ceramic green sheet 42 of two or more sheets and 42 -- is carried out on the installation board 102

[0068] Under the present circumstances, when the upper ceramic green sheet 42 puts on the downward ceramic green sheet 42, by attaching the carrier sheet 41 to this upper ceramic green sheet 42, and restraining the ceramic green sheet 42 with the carrier sheet 41 at the time of a pile, deformation of the ceramic green sheet 42 can be prevented as much as possible, and laminating precision can be improved.

[0069] After the ceramic green sheet 42 of two or more sheets and 42 -- which are furthermore in a laminating state on the installation board 102 are made into a perfect laminating state by applying the press force in a laminating and cutting equipment 29, they will be cut by plurality, and two or more ceramic green-sheet layered product 160,160 -- will be obtained.

[0070] And with a laminating and cutting equipment 29, since the laminating press machine 127 and a cutting machine 128 are arranged on the pedestal 125 and cutting by the cutting machine 128 is performed following the laminating press in the laminating press machine 127, processing temperature of the ceramic green sheet 42 in the laminating press machine 127 and a cutting machine 128 can be made almost the same, and a process tolerance can be improved.

[0071] thus, in case the very thin ceramic green sheet 42 of the thickness of mum order is accumulated Processing is performed attaching the carrier sheet 41 with comparatively strong intensity to the ceramic green sheet 42. Moreover, since cutting processing is performed at the time of cutting, carrying the ceramic green sheet 42 and 42 -- in a laminating state on the installation board 102 Without the ceramic green sheet's 42 being in a free state at the time of a laminating and cutting, being in a restricted state, and being influenced by temperature and humidity, deformation of the ceramic green sheet 42 is avoided as much as possible, and it becomes possible to obtain the ceramic sheet layered product 160 of sufficient precision.

[0072] As mentioned above, although the example of this invention was explained in full detail, this invention can perform various design changes, without deviating from this invention which is not limited to the above-mentioned example and indicated by the claim.

[0073]

[Effect of the Invention] the criteria of plurality [ object / sheet-like / which prepares a ceramic green sheet and changes on the carrier sheet made of synthetic resin according to this invention as mentioned above ] -- two or more criteria pins which punch the hole and were prepared in the installation board -- each criteria, making a hole fit in Since operation of exfoliating the carrier sheet in an upper part position from a ceramic green sheet is repeated successively and the laminating of the ceramic green sheet of two or more sheets is temporarily carried out on an installation board after pasting up ceramic green sheets mutually By performing a temporary laminating, as a ceramic green sheet weak in intensity is restrained with a carrier sheet and an installation board, deformation of a ceramic green sheet is prevented as much as possible, and it becomes possible to obtain the ceramic sheet layered product which was excellent in precision.

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[Translation done.]